

October 26, 2006

Mr. Robert Staley  
Shenango, LLC  
1200 College Ave.  
Terre Haute, Indiana 47802

Re: Permit No.: 167-23088  
First Significant Permit Revision to  
FESOP Permit No.: F167-14053-00068

Dear Mr. Staley:

Shenango, LLC was issued a permit on January 9, 2006 for a ferrous and nonferrous metal foundry. A letter requesting changes to this permit was received on May 11, 2006. Pursuant to the provisions of 326 IAC 2-8-11.1 a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document.

The revision consists of changes to the source description, production limits, record keeping requirements, and removes a quarterly reporting requirement. These changes all relate to the removal of nonferrous metal production.

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Mr. Scott Sines, 103 South 3<sup>rd</sup> Street, Terre Haute, Indiana 47807, or call at (812) 462-3433.

Sincerely,

ORIGINAL SIGNED BY

George M. Needham  
Director  
Vigo County Air Pollution Control

Attachments

sbs

cc: Mindy Hahn, IDEM  
Winter Bottum, IDEM

**Federally Enforceable State Operating Permit  
INDIANA DEPARTMENT OF ENVIRONMENTAL  
MANAGEMENT OFFICE OF AIR QUALITY  
AND VIGO COUNTY AIR POLLUTION CONTROL**

**Shenango, LLC  
1200 College Ave.  
Terre Haute, Indiana 47802**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

**The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.**

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a FESOP under 326 IAC 2-8.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

|  |   |
|--|---|
| Operation Permit No.: 167-14053-00068  |   |
| Original Signed by:<br>George M. Needham, Director<br>Vigo County Air Pollution Control                      | Issuance Date: January 9, 2006<br><br>Expiration Date: January 9, 2011  |
| First Significant Permit Revision: 167-23088-00068   | Page(s) Affected: 4-5, 23-24, 26, 28, 33-34, 37                         |
| Issued by:<br><br>ORIGINAL SIGNED BY<br><br>George M. Needham, Director<br>Vigo County Air Pollution Control | Issuance Date: October 26, 2006<br><br>Expiration Date: January 9, 2011 |

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## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) and Vigo County Air Pollution Control (VCAPC). The information describing the source contained in conditions A.1 through A.4 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-8-3(b)]

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The Permittee owns and operates a ferrous metal foundry that produces ferrous and ductile iron centrifugal castings.

|                              |   |
|------------------------------|---|
| Authorized Individual:       | Robert E. Staley, Vice-President  |
| Source Address:              | 1200 College Ave., Terre Haute, IN 47802  |
| Mailing Address:             | 1200 College Ave., Terre Haute, IN 47802  |
| General Source Phone Number: | 812-235-2058  |
| SIC Code:                    | 3321  |
| County Location:             | Vigo  |
| Source Location Status:      | Attainment or unclassifiable for PM2.5<br>Maintenance Attainment for Sulfur Dioxide (SO <sub>2</sub> )<br>Attainment for all other criteria pollutants  |
| Source Status:               | Federally Enforceable State Operating Permit Program<br>Minor Source, under PSD;<br>Minor Source, under Emission Offset rules;<br>Minor Source, Section 112 of the Clean Air Act<br>1 of 28 Source Categories |

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

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This stationary source consists of the following emission units and pollution control devices:

- (a) Two (2) inductotherm induction furnaces, identified as F1 and F2, installed in January 1989, each with a rated capacity of 2.1 tons per hour. Note: Both furnaces are connected to the same electrical control panel and are interconnected such that only one of the furnaces may be operated at any one time.
- (b) Three (3) Ajax Magnothermic induction furnaces, identified as F5, F6, and F7, installed in January 1989, each with a rated capacity of 1.4 tons per hour. Note: All three furnaces are connected to the same electrical control panel and are interconnected such that only two of the three furnaces may be operated at any one time.
- (c) One (1) inductotherm induction furnace, identified as F12, installed in January 1989, with a rated capacity of 0.735 tons per hour.
- (d) One (1) spin cast machine, identified as S1, installed in January 1989, with a rated capacity of 3444 pounds of metal castings per hour.
- (e) One (1) spin cast machine, identified as S2, installed in January 1989, with a rated capacity of 2666 pounds of metal castings per hour.
- (f) One (1) spin cast machine, identified as S3, installed in January 1989, with a rated capacity of 1966 pounds of metal castings per hour.
- (g) One (1) spin cast machine, identified as S4, installed in January 1989, with a rated capacity of 5457 pounds of metal castings per hour.

- (h) One (1) spin cast machine, identified as S5, installed in January 1989, with a rated capacity of 2963 pounds of metal castings per hour.
- (i) Two (2) spin cast machines, identified as S6 and S7, installed in January 1989, each with a rated capacity of 1257 pounds of metal castings per hour.
- (j) One (1) spin cast machine, identified as S8, installed in January 1989, with a rated capacity of 262 pounds of metal castings per hour.
- (k) One (1) sand blasting operation, identified as SB1, with a sand flow capacity of 462 pounds per hour controlled by baghouse B-4.
- (l) One (1) sand handling operation with a capacity of 1.25 tons of sand per hour and controlled by baghouse B-4.
- (m) Magnesium treatment (Inoculation), with a maximum capacity of 5.64 tons of metal per hour, utilizing an open ladle, and exhausting to general ventilation.
- (n) Pouring with a maximum capacity of 5.64 tons of metal per hour total.
- (o) Cooling with a maximum capacity of 5.64 tons of metal per hour total.

A.3 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities as defined in 326 IAC 2-7-1(21):

- (a) One (1) natural gas fired mold pre-heat oven, identified as M2, with a maximum heat input capacity of 1.5 million Btu per hour (MMBtu/hr).
- (b) One (1) natural gas fired sand curing oven, identified as M3, with a maximum heat input capacity of 2.0 million Btu per hour (MMBtu/hr).
- (c) Three (3) natural gas fired ladle heaters, identified as L1, L2, and L3, each with a maximum heat input capacity of 0.322 million Btu per hour (MMBtu/hr).
- (d) Three (3) natural gas fired ladle heaters, identified as L4, L5, and L6, each with a maximum heat input capacity of 0.599 million Btu per hour (MMBtu/hr).
- (e) One (1) mold spray operation, controlled by a baghouse, identified as B-2.
- (f) One (1) scrap cutter (finish saw) controlled by a baghouse, identified as B-1.
- (g) Natural gas wands and heaters with a combined maximum capacity of 3.6 million Btu per hour (MMBtu/hr).

A.4 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) to renew a Federally Enforceable State Operating Permit (FESOP).

## **SECTION B GENERAL CONDITIONS**

### **B.1 Definitions [326 IAC 2-8-1]**

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Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

### **B.2 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]**

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- (a) This permit, 167-14053-00068, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ and VCAPC, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect until the renewal permit has been issued or denied.

### **B.3 Term of Conditions [326 IAC 2-1.1-9.5]**

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Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

- (a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

### **B.4 Enforceability [326 IAC 2-8-6]**

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- (a) Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM and VCAPC, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.
- (b) Unless otherwise stated, all terms and conditions in this permit that are local requirements, including any provisions designed to limit the source's potential to emit, are enforceable by VCAPC.

### **B.5 Severability [326 IAC 2-8-4(4)]**

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The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

### **B.6 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]**

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This permit does not convey any property rights of any sort or any exclusive privilege.

### **B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]**

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- (a) The Permittee shall furnish to IDEM, OAQ and VCAPC, within a reasonable time, any information that IDEM, OAQ and VCAPC may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). Upon request, the Permittee shall also furnish to IDEM, OAQ and VCAPC copies of records required to be kept by this permit.
- (b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of

requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Compliance Order Issuance [326 IAC 2-8-5(b)]

IDEM, OAQ and VCAPC may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

B.9 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

B.10 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]

- (a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

- (b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ and VCAPC on or before the date it is due.
- (c) The annual compliance certification report shall include the following:
  - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
  - (2) The compliance status;
  - (3) Whether compliance was continuous or intermittent;
  - (4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and

- (5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ and VCAPC may require to determine the compliance status of the source.

The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.11 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)][326 IAC 2-8-5(a)(1)]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) including the following information on each facility:
- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
  - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) A copy of the PMPs shall be submitted to IDEM, OAQ and VCAPC upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ and VCAPC. IDEM, OAQ and VCAPC may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.12 Emergency Provisions [326 IAC 2-8-12]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
  - (2) The permitted facility was at the time being properly operated;
  - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
  - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, and VCAPC within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality,  
Compliance Section), or  
Telephone Number: 317-233-0178 (ask for Compliance Section)  
Facsimile Number: 317-233-6865  
Vigo County Air Pollution Control phone: (812) 462-3433; fax: (812) 462-3447

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-8-4(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
  - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
  - (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ and VCAPC may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
  - (f) Failure to notify IDEM, OAQ and VCAPC by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.

- (g) Operations may continue during an emergency only if the following conditions are met:
- (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
  - (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:
    - (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
    - (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

**B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]**

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- (a) All terms and conditions of permits established prior to 167-14053-00068 and issued pursuant to permitting programs approved into the state implementation plan have been either:
- (1) incorporated as originally stated,
  - (2) revised, or
  - (3) deleted.
- (b) All previous registrations and permits are superseded by this permit.

**B.14 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]**

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The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

**B.15 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]**

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- (a) Deviations from any permit requirements (for emergencies see Section B - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control

103 South Third Street  
Terre Haute, IN 47807

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

**B.16 Permit Modification, Reopening, Revocation and Reissuance, or Termination**  
[326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

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- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ, or VCAPC determines any of the following:
- (1) That this permit contains a material mistake.
  - (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
  - (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]
- (c) Proceedings by IDEM, OAQ, or VCAPC to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ, or VCAPC at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ, or VCAPC may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

**B.17 Permit Renewal [326 IAC 2-8-3(h)]**

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- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ, and VCAPC and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management

Permits Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

- (b) A timely renewal application is one that is:
- (1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
  - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, and VCAPCon or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ and VCAPC takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ and VCAPC any additional information identified as being needed to process the application.

B.18 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this permit.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:
- Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251
- and
- Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807
- Any such application shall be certified by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.19 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) through (d) without a prior permit revision, if each of the following conditions is met:

- (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
- (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
- (3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
- (4) The Permittee notifies the:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

and

United States Environmental Protection Agency, Region V  
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

- (5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b) through (d). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ and VCAPC in the notices specified in 326 IAC 2-8-15(b)(2), (c)(1), and (d).

- (b) Emission Trades [326 IAC 2-8-15(c)]  
The Permittee may trade emissions increases and decreases at in the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(c).
- (c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]  
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.
- (d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.20 Source Modification Requirement [326 IAC 2-8-11.1]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-8-11.1.

B.21 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, and VCAPC or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, at substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.22 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

The application which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326

IAC 2-8-10(b)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ, and VCAPC within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ, or VCAPC the applicable fee is due April 1 of each year.
- (b) Failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.24 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

## SECTION C

## SOURCE OPERATION CONDITIONS

Entire Source

### Emission Limitations and Standards [326 IAC 2-8-4(1)]

#### C.1 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source's potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one-hundred (100) tons per twelve (12) consecutive month period. This limitation shall also make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-3 (Emission Offset) not applicable;
- (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) The potential to emit particulate matter (PM) from the entire source shall be limited to less than one-hundred (100) tons per twelve (12) consecutive month period.

(c) This condition shall include all emission points at this source including those that are insignificant as defined in 326 IAC 2-7-1(21). The source shall be allowed to add insignificant activities not already listed in this permit, provided that the source's potential to emit does not exceed the above specified limits.

(d) Section D of this permit contains independently enforceable provisions to satisfy this requirement.

#### C.2 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in

accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.4 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

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The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

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The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

C.6 Stack Height [326 IAC 1-7]

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The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted.

C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

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- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
  - (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
  - (2) If there is a change in the following:
    - (A) Asbestos removal or demolition start date;
    - (B) Removal or demolition contractor; or
    - (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management  
Asbestos Section, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control

103 South Third Street  
Terre Haute, IN 47807

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (e) **Procedures for Asbestos Emission Control**  
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) **Demolition and Renovation**  
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Accredited Asbestos Inspector**  
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

### **Testing Requirements [326 IAC 2-8-4(3)]**

#### **C.8 Performance Testing [326 IAC 3-6]**

---

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ and

VCAPC not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, and VCAPC if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

### **Compliance Requirements [326 IAC 2-1.1-11]**

#### **C.9 Compliance Requirements [326 IAC 2-1.1-11]**

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The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

### **Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]**

#### **C.10 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]**

---

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a permit revision shall be implemented when operation begins.

#### **C.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]**

---

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

#### **C.12 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]**

---

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.

- (b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

**Corrective Actions and Response Steps [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]**

**C.13 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]**

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If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

**C.14 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]**

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- (a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
- (1) initial inspection and evaluation;
  - (2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or
  - (3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
- (1) monitoring results;
  - (2) review of operation and maintenance procedures and records;
  - (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall maintain the following records:
- (1) monitoring data;
  - (2) monitor performance data, if applicable; and
  - (3) corrective actions taken.

**C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]**

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- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the

Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

### **Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]**

#### **C.16 General Record Keeping Requirements[326 IAC 2-8-4(3)] [326 IAC 2-8-5]**

---

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner or VCAPC makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner or VCAPC within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

#### **C.17 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]**

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- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

and

Vigo County Air Pollution Control  
103 South Third Street  
Terre Haute, IN 47807

- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or

before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, and VCAPC on or before the date it is due.

- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

### **Stratospheric Ozone Protection**

#### **C.18 Compliance with 40 CFR 82 and 326 IAC 22-1**

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Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with the standards for recycling and emissions reduction:

- (a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- (b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- (c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

## SECTION D.1 FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-8-4(10)]:

- (a) Two (2) inductotherm induction furnaces, identified as F1 and F2, installed in January 1989, each with a rated capacity of 2.1 tons per hour.
- (b) Three (3) Ajax Magnothermic induction furnaces, identified as F5, F6, and F7, installed in January 1989, each with a rated capacity of 1.4 tons per hour.
- (c) One (1) inductotherm induction furnace, identified as F12, installed in January 1989, with a rated capacity of 0.735 tons per hour.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

### Emission Limitations and Standards [326 IAC 2-8-4(1)]

#### D.1.1 Particulate Emissions Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(e) (formerly 326 IAC 6-1-2(e)), the particulate emissions from each of the furnaces, identified as F1, F2, F5, F6, F7, and F12 shall be limited to particulate emissions of no greater than sixteen-hundredths (0.16) grams per dry standard cubic meter (0.07 grains per dry standard cubic foot (gr/dscf)).

#### D.1.2 Particulate Emissions [326 IAC 2-8] [326 IAC 2-2]

In order that the requirements of 326 IAC 2-7 and 326 IAC 2-2 do not apply, the combined metal melted in the induction melting furnaces F1, F2, F5, F6, F7, and F12 shall be less than 15,000 tons per 12 consecutive month period with compliance determined at the end of each month. This equates to 12,000 tons of ferrous metal (plus another 3,000 tons of ferrous which is for magnesium treatment and is covered in section D.3) per 12 consecutive month period with compliance determined at the end of each month.

- (a) The PM emissions from the induction furnaces shall be limited to 0.9 pounds per ton from ferrous metal.
- (b) The PM10 emissions from the induction furnaces shall be limited to 0.86 pounds per ton from ferrous metal.

### Compliance Determination Requirements

#### D.1.3 Testing Requirements [326 IAC 2-1.1-11]

During the period between 6 and 12 months after the issuance of this FESOP 167-14053-00068, in order to demonstrate compliance with Conditions D.1.1 and D.1.2 for ferrous metal, the Permittee shall perform PM and PM10 testing on at least one Induction Furnace utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable PM-10. Testing shall be conducted in accordance with Section C – Performance Testing.

### Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

#### D.1.4 Record Keeping Requirements

- (a) To document compliance with Condition D.1.2, the Permittee shall maintain records of the ferrous metal melted in all of the induction furnaces. Records maintained for this requirement shall be compiled monthly. These records shall be complete and sufficient to establish compliance with the metal melting limits established in Condition D.1.2.

- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.1.5 Reporting Requirements

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A quarterly summary of the information to document compliance with Condition D.1.2 shall be submitted to the addresses listed in Section C – General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification of the “authorized individual” as defined by 326 IAC 2-1.1-1(1).

## SECTION D.2

## FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-8-4(10)]:

- (f) One (1) spin cast machine, identified as S1, installed in January 1989, with a rated capacity of 3444 pounds of metal castings per hour.
- (g) One (1) spin cast machine, identified as S2, installed in January 1989, with a rated capacity of 2666 pounds of metal castings per hour.
- (h) One (1) spin cast machine, identified as S3, installed in January 1989, with a rated capacity of 1966 pounds of metal castings per hour.
- (i) One (1) spin cast machine, identified as S4, installed in January 1989, with a rated capacity of 5457 pounds of metal castings per hour.
- (j) One (1) spin cast machine, identified as S5, installed in January 1989, with a rated capacity of 2963 pounds of metal castings per hour.
- (k) Two (2) spin cast machines, identified as S6 and S7, installed in January 1989, each with a rated capacity of 1257 pounds of metal castings per hour.
- (l) One (1) spin cast machine, identified as S8, installed in January 1989, with a rated capacity of 262 pounds of metal castings per hour.
- (k) One (1) sand blasting operation, identified as SB1, with a sand flow capacity of 462 pounds per hour controlled by baghouse B-4.
- (l) One (1) sand handling operation with a capacity of 1.25 tons of sand per hour and controlled by baghouse B-4.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

### Emission Limitations and Standards [326 IAC 2-8-4(1)]

#### D.2.1 Particulate Emissions Limitations [326 IAC 6.5-1-2] [326 IAC 2-2] 326 IAC 2-8]

- (a) Pursuant to 326 IAC 6.5-1-2(a) (formerly 326 IAC 6-1-2(a)), the particulate emissions from the spin cast machines, identified as S1, S2, S3, S4, S5, S6, S7, and S8, sand blasting, and sand handling shall be limited to particulate emissions of no greater than sixteen-hundredths (0.07) grams per dry standard cubic meter (0.03 grains per dry standard cubic foot (gr/dscf)).
- (b) Sand blasting operations shall be limited to 624 hours per 12 consecutive month period with compliance determined at the end of each month which renders PSD and 326 IAC not applicable.
  - (1) PM emissions are limited to 18.94 lbs per hour and 5.92 tons per 12 consecutive month period with compliance determined at the end of each month.
  - (2) PM-10 emissions are limited to 13.26 lbs per hour and 4.14 tons per 12 consecutive month period with compliance determined at the end of each month.
- (c) Sand handling operations shall be limited to 2,442 tons of sand per 12 consecutive month period with compliance determined at the end of each month which renders PSD and 326 IAC 2-7 not applicable.

- (1) PM emissions are limited to 3.6 lbs per ton of metal produced.
- (2) PM-10 emissions are limited to 0.7 lbs per ton of metal produced.

#### D.2.2 Metal Usage Limitation [326 IAC 2-8] [326 IAC 2-2]

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In order that the requirements of 326 IAC 2-7 and 326 IAC 2-2 do not apply, the combined metal input to the spin cast machines S1, S2, S3, S4, S5, S6, S7, and S8 shall be limited as follows:

- (a) A total of 15,000 tons of metal per 12 consecutive month period with compliance determined at the end of each month.
- (b) PM emissions shall not exceed 4.2 lbs per ton of metal poured.
- (c) PM-10 emissions shall not exceed 2.06 lbs per ton of metal poured.

### Compliance Determination Requirements

#### D.2.3 Particulate Matter (PM)

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The baghouse (B-4) for PM control from the sand blasting and sand handling operations shall be in operation at all times when the sand blasting or sand handling systems are in operation.

### Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

#### D.2.4 Visible Emissions Notations

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- (a) Visible emission notations of the baghouse (B-4) exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C- Response to Excursions or Exceedances shall be considered a deviation from this permit.

#### D.2.5 Parametric Monitoring

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- (a) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the sand blasting and sand handling systems (B-4), at least once per day when the sand blasting and sand handling systems are in operation and when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C – Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C – Response to Excursions or Exceedances shall be considered a deviation from this permit.

- (b) The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and VCAPC and shall be calibrated at least once every six (6) months.

#### D.2.6 Broken Bag or Failure Detection

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For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emissions unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

### **Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]**

#### D.2.7 Record Keeping Requirements

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- (a) To document compliance with Condition D.2.4, the Permittee shall maintain records of visible emission notations taken each day of the baghouse B-4 stack exhaust.
- (b) To document compliance with Condition D.2.5, the Permittee shall maintain records once per day of the total static pressure drop during normal operation when venting to the atmosphere.
- (c) To document compliance with Condition D.2.1, the Permittee shall maintain records of the weight of sand throughput to the sand handling operations each month. The records shall be complete and sufficient to establish compliance with the sand use limitation in Condition D.2.1.
- (d) To document compliance with Condition D.2.1, the Permittee shall maintain records of sand blasting hours each month. The records shall be complete and sufficient to establish compliance with the sand blasting limitation in Condition D.2.1.
- (e) To document compliance with Condition D.2.2, the Permittee shall maintain records of the weight of metal input to the spin casting machines each month. The records shall be complete and sufficient to establish compliance with the metal input limitation in Condition D.2.2.
- (f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.2.8 Reporting Requirements

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Quarterly summaries of the information to document compliance with Condition D.2.1 and D.2.2 shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

### SECTION D.3 FACILITY OPERATION CONDITIONS

#### Facility Description [326 IAC 2-8-4(10)]:

- (a) Magnesium Treatment (Inoculation), with a maximum capacity of 5.64 tons of metal per hour, utilizing an open ladle, and exhausting to general ventilation.
- (b) Pouring with a maximum capacity of 5.64 tons of metal per hour total. Metal is poured from the ladle directly into the molds in the spin cast machines.
- (c) Cooling with a maximum capacity of 5.64 tons of metal per hour total.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

#### Emission Limitations and Standards [326 IAC 2-8-4(1)]

##### D.3.1 Particulate Matter Limitation (PM) [[326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2 (formerly 326 IAC 6-1-2), each of the facilities listed above (Magnesium Treatment, Pouring, and Cooling) shall not emit particulate matter (PM) in excess of 0.03 grains per dry standard cubic foot.

##### D.3.2 Particulate Emissions [326 IAC 2-2] [326 IAC 2-8]

- (a) Magnesium Treatment (Inoculation)
  - 1. The input of metal to the Magnesium Treatment shall be less than 3,000 tons per 12 consecutive month period with compliance determined at the end of each month.
  - 2. The PM emissions from Magnesium Treatment shall be limited to 1.8 pounds per ton of metal.
  - 3. The PM-10 emissions from Magnesium Treatment shall be limited to 1.8 pounds per ton of metal.
- (b) Pouring
  - 1. The PM emissions from Pouring shall be limited to 4.20 pounds per ton of metal.
  - 2. The PM-10 emissions from Pouring shall be limited to 2.06 pounds per ton of metal.
  - 3. The VOC emissions from Pouring and Cooling shall be limited to 0.14 pounds per ton of metal.
- (c) Cooling
  - 1. The PM emissions from Cooling shall be limited to 1.40 pounds per ton of metal.
  - 2. The PM-10 emissions from Cooling shall be limited to 1.40 pounds per ton of metal.

These limits (combined with others throughout this approval) are required to limit the potential to emit of particulate matter and VOC for Shenango LLC to less than 100 tons per 12 consecutive month period. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 326 IAC 2-7 (Part 70 Program) not applicable.

#### Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

##### D.3.3 Record Keeping Requirements

- (a) To document compliance with Condition D.3.2, the Permittee shall maintain records of the weight of metal inoculated each month. The records shall be complete and sufficient to establish compliance with the metal throughput limitation in Condition D.3.2.

- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.3.4 Reporting Requirements

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A quarterly summary of the information to document compliance with Condition D.3.2 shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
CERTIFICATION FORM**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: 167-14053-00068

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.**

Please check what document is being certified:

- Annual Compliance Certification Letter
- Test Result (specify) \_\_\_\_\_
- Report (specify) \_\_\_\_\_
- Notification (specify) \_\_\_\_\_
- Affidavit (specify) \_\_\_\_\_
- Other (specify) \_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE BRANCH  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251  
Phone: 317-233-5674  
Fax: 317-233-5967  
and  
VIGO COUNTY AIR POLLUTION CONTROL  
103 South 3rd Street  
Terre Haute, IN 47807  
Phone: 812-462-3433  
Fax: 812-462-3447**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
EMERGENCY OCCURRENCE REPORT**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: 167-14053-00068

**This form consists of 2 pages**

**Page 1 of 2**

|   |
|---|
| <input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) <ul style="list-style-type: none"><li>• The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and</li><li>• The Permittee must notify the VCAPC, within four (4) business hours (812-462-3433); and</li><li>• The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-5967 and 812-462-3447), and follow the other requirements of 326 IAC 2-7-16.</li></ul> |
|---|

If any of the following are not applicable, mark N/A

|   |
|---|
| Facility/Equipment/Operation:                       |
| Control Equipment:                                  |
| Permit Condition or Operation Limitation in Permit: |
| Description of the Emergency:                       |
| Describe the cause of the Emergency:                |

If any of the following are not applicable, mark N/A

**Page 2 of 2**

|   |
|---|
| Date/Time Emergency started:  |
| Date/Time Emergency was corrected:  |
| Was the facility being properly operated at the time of the emergency?    Y    N<br>Describe:   |
| Type of Pollutants Emitted: TSP, PM-10, SO <sub>2</sub> , VOC, NO <sub>x</sub> , CO, Pb, other:   |
| Estimated amount of pollutant(s) emitted during emergency:  |
| Describe the steps taken to mitigate the problem:   |
| Describe the corrective actions/response steps taken:   |
| Describe the measures taken to minimize emissions:  |
| If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value: |

Form Completed by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

A certification is not required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Induction Melting Furnaces  
Parameter: Melting of the furnaces (ferrous)  
Limit: 12,000 tons of ferrous metal per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Magnesium Treatment  
Parameter: Metal Treated  
Limit: 3,000 tons of metal per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

No deviation occurred in this quarter.

Deviation/s occurred in this quarter.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Sand Blasting  
Parameter: Hours of Operation  
Limit: 624 hours per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Sand Handling  
Parameter: Sand input  
Limit: 2,442 tons of sand per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

No deviation occurred in this quarter.

Deviation/s occurred in this quarter.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Spin Cast Machines  
Parameter: Metal input  
Limit: 15,000 tons of metal per 12 consecutive month period with compliance determined at the end of each month (12,000 tons ferrous and 3,000 tons ductile)

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: 167-14053-00068

Months: \_\_\_\_\_ to \_\_\_\_\_ Year: \_\_\_\_\_

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

**Permit Requirement** (specify permit condition #)

**Date of Deviation:**

**Duration of Deviation:**

**Number of Deviations:**

**Probable Cause of Deviation:**

**Response Steps Taken:**

**Permit Requirement** (specify permit condition #)

**Date of Deviation:**

**Duration of Deviation:**

**Number of Deviations:**

**Probable Cause of Deviation:**

**Response Steps Taken:**

|  |                               |
|--|-------------------------------|
| <b>Permit Requirement</b> (specify permit condition #) |                               |
| <b>Date of Deviation:</b>                              | <b>Duration of Deviation:</b> |
| <b>Number of Deviations:</b>                           |                               |
| <b>Probable Cause of Deviation:</b>                    |                               |
| <b>Response Steps Taken:</b>                           |                               |
| <b>Permit Requirement</b> (specify permit condition #) |                               |
| <b>Date of Deviation:</b>                              | <b>Duration of Deviation:</b> |
| <b>Number of Deviations:</b>                           |                               |
| <b>Probable Cause of Deviation:</b>                    |                               |
| <b>Response Steps Taken:</b>                           |                               |
| <b>Permit Requirement</b> (specify permit condition #) |                               |
| <b>Date of Deviation:</b>                              | <b>Duration of Deviation:</b> |
| <b>Number of Deviations:</b>                           |                               |
| <b>Probable Cause of Deviation:</b>                    |                               |
| <b>Response Steps Taken:</b>                           |                               |

Form Completed By: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

## Indiana Department of Environmental Management Office of Air Quality

### Addendum to the Significant Permit Revision for the Federally Enforceable State Operating Permit (FESOP)

|                                   |   |
|-----------------------------------|---|
| Source Name:                      | Shenango, LLC                                 |
| Source Location:                  | 1200 College Ave., Terre Haute, Indiana 47802 |
| County:                           | Vigo County                                   |
| SIC Code:                         | 3321  |
| Operation Permit No.:             | F167-14053-00068                              |
| Operational Permit Issuance Date: | January 9, 2006                               |
| Significant Permit Revision No.:  | F167-23088-00068                              |
| Permit Reviewer:                  | Scott Sines                                   |

On September 6, 2006 the Office of Air Quality (OAQ) and Vigo County Air Pollution Control (VCAPC) had a notice published in the Terre Haute Tribune Star, Terre Haute Indiana, stating that Shenango, LLC had applied for a significant permit revision to their Federally Enforceable State Operating Permit (FESOP) to change the facility description from "a ferrous and nonferrous metal foundry" to "a ferrous metal foundry," remove all references to nonferrous metal production from the operating permit, and to increase the production limit of ferrous metal and ferrous metal treated with magnesium (inoculation). The notice also stated that OAQ and VCAPC proposed to issue a significant permit revision for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Upon further review, the OAQ has decided to make a revision to the permit. The summary of the change is shown below where deleted language is shown with a strikeout and added language is in bold.

In the Asbestos condition in FESOPs delete, "The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable." All conditions and requirements in a FESOP are federally enforceable including this.

Condition C.7(g) is amended to read as follows:

- (g) **Indiana Accredited Asbestos Inspector**  
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. ~~The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.~~

**Indiana Department of Environmental Management  
Office of Air Quality  
and  
Vigo County Air Pollution Control**

**Technical Support Document (TSD) for a Federally Enforceable State  
Operating Permit (FESOP) Significant Permit Revision**

**Source Background and Description**

|                                   |   |
|-----------------------------------|---|
| Source Name:                      | Shenango, LLC                                 |
| Source Location:                  | 1200 College Ave., Terre Haute, Indiana 47802 |
| County:                           | Vigo County                                   |
| SIC Code:                         | 3321  |
| Operation Permit No.:             | F167-14053-00068                              |
| Operational Permit Issuance Date: | January 9, 2006                               |
| Significant Permit Revision No.:  | F167-23088-00068                              |
| Permit Reviewer:                  | Scott Sines                                   |

The Vigo County Air Pollution Control (VCAPC) has reviewed a permit revision application from Shenango, LLC to change the facility description from "a ferrous and nonferrous metal foundry" to "a ferrous metal foundry," remove all references to nonferrous metal production from the operating permit, and to increase the production limit of ferrous metal and ferrous metal treated with magnesium (inoculation).

**Explanation of Revision**

Shenango, LLC is an existing ferrous and nonferrous metal foundry and an existing PSD minor source. Their FESOP permit (F167-14053-00068) was issued on January 9, 2006. By removing the 1,000 tons per year of nonferrous metal production from the operation the potential to emit after issuance of PM decreased from 72.02 tons per year to 59.22 tons per year and the potential to emit after issuance of PM10 decreased from 47.05 tons per year to 35.05 tons per year. As a result of these decreases in PM and PM10 emissions Shenango, LLC has requested to increase the production of ferrous metal from 9,000 tons per year to 12,000 tons per year and to increase the production of magnesium treated ferrous metal (ductile iron) from 1,000 tons per year to 3,000 tons per year. This increases Shenango's total metal production from 11,000 tons per year (ferrous, nonferrous, and ductile iron) to 15,000 tons per year (ferrous and ductile iron only). New Limited Potential to Emit (PTE) calculations based on these limits are listed below.

**Justification for the Revision**

This modification is being performed through a FESOP Significant Permit Revision pursuant to 326 IAC 2-8-11.1(g)(3) because this is a revision that will reduce the limited potential to emit, will increase production limits of ferrous and magnesium treated ferrous (ductile iron) metal, and will change permit reporting conditions.

**Enforcement Issues**

There are no enforcement actions pending.

## County Attainment Status

On August 7, 2006, a temporary emergency rule took effect redesignating Delaware, Greene, Jackson, Vanderburgh, Vigo and Warrick Counties to attainment for the eight-hour ozone standard, redesignating Lake County to attainment for the sulfur dioxide standard, and revoking the one-hour ozone standard in Indiana. The Indiana Air Pollution Control Board has approved a permanent rule revision to incorporate these changes into 326 IAC 1-4-1. The permanent revision to 326 IAC 1-4-1 will take effect prior to the expiration of the emergency rule. Therefore, the following changes will be made to the permit:

The source is located in Vigo County.

| Pollutant       | Status                 |
|-----------------|------------------------|
| PM-10           | Attainment             |
| PM-2.5          | Attainment             |
| SO <sub>2</sub> | Maintenance Attainment |
| NO <sub>2</sub> | Attainment             |
| 8-hour Ozone    | Attainment             |
| CO              | Attainment             |
| Lead            | Attainment             |

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NOx emissions are considered when evaluating the rule applicability relating to ozone. Vigo County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Vigo County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM 2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM 2.5 emissions. See the State Rule Applicability for the source section.
- (c) Vigo County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (d) Fugitive Emissions  
Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2 or 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of PSD and Emission Offset applicability.

## Emission Calculations

See Appendix A of this document for detailed emission calculations (eighteen pages).

**Potential to Emit After Issuance**

The table below summarizes the limited potential to emit, reflecting all limits, of the significant emission units. The figures are based on production limits of 12,000 tons/year ferrous metal and 3,000 tons/year of ductile iron.

| Process/emission unit    | Limited Potential To Emit (tons/year) |              |                 |             |             |                 |             |
|--------------------------|---------------------------------------|--------------|-----------------|-------------|-------------|-----------------|-------------|
|                          | PM                                    | PM-10        | SO <sub>2</sub> | VOC         | CO          | NO <sub>x</sub> | Lead        |
| Melting Furnaces         | 8.10                                  | 7.86         | negligible      | negligible  | negligible  | negligible      | 0.11        |
| Spin Cast Machines       | 31.50                                 | 15.45        | 0.15            | 0.05        | negligible  | 0.08            | 0.12        |
| Cooling                  | 10.50                                 | 10.50        | negligible      | negligible  | negligible  | negligible      | negligible  |
| Sand Handling            | 4.40                                  | 0.70         | negligible      | negligible  | negligible  | negligible      | negligible  |
| Sand Blasting            | 5.92                                  | 4.14         | 0.0             | 0.0         | 0.0         | 0.0             | 0.0         |
| Finish Cutter            | 4.42                                  | 0.00         | 0.00            | 0.00        | 0.00        | 0.00            | 0.00        |
| Natural Gas              | 0.10                                  | 0.20         | negligible      | 0.20        | 2.3         | 2.70            | negligible  |
| Insignificant Activities | 3.0                                   | 3.0          | negligible      | negligible  | negligible  | negligible      | negligible  |
| <b>Total Emissions</b>   | <b>67.94</b>                          | <b>41.85</b> | <b>0.15</b>     | <b>1.26</b> | <b>2.30</b> | <b>2.78</b>     | <b>0.23</b> |

**Federal Rule Applicability**

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.
- (b) There are no National Emissions Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20, and 40 CFR Part 63) applicable to this proposed modification.

**State Rule Applicability – Entire Source and Individual Facilities**

There are no new state rules applicable to this modification.

**Recommendation**

The staff recommends to the Commissioner that the Significant Permit Revision be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An administratively complete Permit Revision application for the purposes of this review was received on May 11, 2006.

## Proposed Changes

The following terms and conditions from FESOP Permit F167-14053-00068 have been revised in this permit modification. **Bold** language delineates verbiage that has been added; language with a ~~strikeout~~ delineates verbiage that has been deleted.

On August 7, 2006, a temporary emergency rule took effect re-designating Delaware, Greene, Jackson, Vanderburgh, Vigo and Warrick Counties to attainment for the eight-hour ozone standard, re-designating Lake County to attainment for the sulfur dioxide standard, and revoking the one-hour ozone standard in Indiana. The Indiana Air Pollution Control Board has approved a permanent rule revision to incorporate these changes into 326 IAC 1-4-1. The permanent revision to 326 IAC 1-4-1 will take effect prior to the expiration of the emergency rule. In addition to changes being made for this permit modification the following ozone attainment change will also be made to the permit:

### A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a ferrous ~~and nonferrous~~ metal foundry that produces ferrous, ~~nonferrous~~, and ductile iron centrifugal castings.

|                         |  |
|-------------------------|--|
| Authorized individual:  | Robert E. Staley, Vice-President   |
| Source Address:         | 1200 College Avenue, Terre Haute, Indiana 47802  |
| Mailing Address:        | 1200 College Avenue, Terre Haute, Indiana 47802  |
| General Source Phone:   | (812) 235-2058   |
| SIC Code:               | 3321 <del>and 3369</del>   |
| Source Location Status: | Vigo County<br>Attainment or unclassifiable for PM2.5<br>Maintenance Attainment for Sulfur Dioxide (SO <sub>2</sub> )<br><del>Non-attainment for ozone under the 8-hour standard</del><br>Attainment for all other criteria pollutants |
| Source Status:          | Federally Enforceable State Operating Permit (FESOP)<br>Minor Source, under PSD;<br>Minor Source, under Emission Offset rules;<br>Minor Source, Section 112 of the Clean Air Act<br>1 of 28 Source Categories                          |

Indiana was required to incorporate credible evidence provisions into state rules consistent with the SIP call published by U.S. EPA in 1997 (62 FR 8314). Indiana has incorporated the credible evidence provision in 326 IAC 1-1-6. This rule is effective March 16, 2005; therefore, the condition reflecting this rule will be incorporated into the permit as follows:

### B.24 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

**For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.**

### D.1.2 Particulate Emissions [326 IAC 2-8] [326 IAC 2-2]

In order that the requirements of 326 IAC 2-7 and 326 IAC 2-2 do not apply, the combined metal melted in the induction melting furnaces F1, F2, F5, F6, F7, and F12 shall be less than ~~44,000~~ **15,000** tons per 12 consecutive month period with compliance determined at the end of each month. This equates to ~~9,000~~ **12,000** tons of ferrous metal (plus another ~~4,000~~ **3,000** tons of ferrous which is for magnesium treatment and is covered in section D.3) ~~and 1,000 tons of nonferrous metal~~ per 12 consecutive month period with compliance determined at the end of each month.

- (a) The PM emissions ~~are limited as follows:~~  
(1) ~~The PM emissions~~ from the induction furnaces shall be limited to 0.9 pounds per ton from ferrous metal.

~~(2) The PM emissions from the induction furnaces shall be limited to 19.98 pounds per ton from nonferrous metal.~~

(b) The PM10 emissions are limited as follows:

~~(1) The PM-10 emissions from the induction furnaces shall be limited to 0.86 pounds per ton from ferrous metal.~~

~~(2) The PM-10 emissions from the induction furnaces shall be limited to 19.98 pounds per ton from nonferrous metal.~~

#### D.1.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

---

During the period between 6 and 12 months after the issuance of FESOP 167-14053-00068, in order to demonstrate compliance with Conditions D.1.1 and D.1.2 for ~~both ferrous and nonferrous~~ metal, the Permittee shall perform PM and PM10 testing on at least one Induction Furnace utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable PM-10. Testing shall be conducted in accordance with Section C – Performance Testing.

#### D.1.4 Record Keeping Requirements

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(a) To document compliance with Condition D.1.2, the Permittee shall maintain records of the ferrous ~~and nonferrous~~ metal melted in all of the induction furnaces. Records maintained for this requirement shall be compiled monthly. These records shall be complete and sufficient to establish compliance with the metal melting limits established in Condition D.1.2.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.2.2 Metal Usage Limitation [326 IAC 2-8] [326 IAC 2-2]

---

In order that the requirements of 326 IAC 2-7 and 326 IAC 2-2 do not apply, the combined metal input to the spin cast machines S1, S2, S3, S4, S5, S6, S7, and S8 shall be limited as follows:

(a) A total of ~~44,000~~ **15,000** tons of metal per 12 consecutive month period with compliance determined at the end of each month.

(b) PM emissions shall not exceed 4.2 lbs per ton of metal poured.

(c) PM-10 emissions shall not exceed 2.06 lbs per ton of metal poured.

#### D.3.2 Particulate Emissions [326 IAC 2-2] [326 IAC 2-8]

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(a) Magnesium Treatment (Inoculation)

1. The input of metal to the Magnesium Treatment shall be less than ~~4,000~~ **3,000** tons per 12 consecutive month period with compliance determined at the end of each month.

2. The PM emissions from Magnesium Treatment shall be limited to 1.8 pounds per ton of metal.

3. The PM-10 emissions from Magnesium Treatment shall be limited to 1.8 pounds per ton of metal.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Induction Melting Furnaces  
Parameter: Melting of the furnaces (ferrous)  
Limit: ~~9,000~~ **12,000** tons of ferrous metal per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167 14053-00068  
Facility: Induction Melting Furnaces  
Parameter: Melting of the furnaces [nonferrous]  
Limit: 1,000 tons of nonferrous metal per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

\_\_\_\_\_  No deviation occurred in this quarter.

\_\_\_\_\_  Deviation/s occurred in this quarter.

\_\_\_\_\_ Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title / Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Magnesium Treatment  
Parameter: Metal Treated  
Limit: ~~4,000~~ **3,000** tons of metal per 12 consecutive month period with compliance determined at the end of each month

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

No deviation occurred in this quarter.

Deviation/s occurred in this quarter.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
and  
VIGO COUNTY AIR POLLUTION CONTROL**

**FESOP Quarterly Report**

Source Name: Shenango LLC  
Source Address: 1200 College Avenue, Terre Haute, Indiana 47802  
Mailing Address: 1200 College Avenue, Terre Haute, Indiana 47802  
FESOP No.: F167-14053-00068  
Facility: Spin Cast Machines  
Parameter: Metal input  
Limit: ~~44,000~~ **15,000** tons of metal per 12 consecutive month period with compliance determined at the end of each month (~~9,000~~ **12,000** tons ferrous, ~~1,000 tons nonferrous,~~ and ~~4,000~~ **3,000** tons ductile)

YEAR: \_\_\_\_\_

| Month   | This Month | Previous 11 Months | 12 Month Total |
|---------|------------|--------------------|----------------|
| Month 1 |            |                    |                |
| Month 2 |            |                    |                |
| Month 3 |            |                    |                |

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**Conclusion**

This permit revision shall be subject to the conditions of the attached FESOP Minor Permit Revision No.: F167-23088-00068.

**Appendix A: Emission Calculations  
Ferrous and Nonferrous Iron Foundry Emissions**

**Company Name:** Shenango, LLC  
**Address City IN Zip:** 1200 College Ave, Terre Haute, IN 47802  
**Permit Number:** 167-23088-00068  
**Plt ID:** 167-00068  
**Reviewer:** Scott Sines  
**Date:** 6/23/2006

\*\* Process Emissions \*\*

Ferrous - F1

| Process:<br>Ferrous - F1  | Rate<br>(tons iron/hr) | Pollutant              | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|------------------------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Melting - Electric<br>Induction Furnace<br>Source of Criteria<br>Pollutant Factors:<br><br>EPA SCC# 3-04-003-03<br>FIRE 6.01<br>AP-42 Ch. 12.10<br>Fifth edition 1995 | 2.1                    | PM                     | 0.90                    | 8.28            | None               |                           | 8.28            |
|   |                        | PM-10                  | 0.86                    | 7.91            |                    |                           | 7.91            |
|   |                        | SO2                    | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx                    | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC                    | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO                     | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | chromium               | 2.3E-04                 | 2.1E-03         |                    |                           | 2.1E-03         |
|   |                        | cobalt                 | 2.0E-05                 | 1.8E-04         |                    |                           | 1.8E-04         |
|   |                        | nickel                 | 4.0E-04                 | 3.7E-03         |                    |                           | 3.7E-03         |
|   |                        | arsenic                | 8.0E-05                 | 7.4E-04         |                    |                           | 7.4E-04         |
|   |                        | cadmium                | 4.0E-05                 | 3.7E-04         |                    |                           | 3.7E-04         |
|   |                        | FIRE 6.01<br>manganese | 2.3E-02                 | 2.1E-01         |                    |                           | 2.1E-01         |
|   |                        | FIRE 6.01<br>selenium  | 1.0E-05                 | 9.2E-05         |                    |                           | 9.2E-05         |
|   | FIRE 6.01<br>Lead      | 9.0E-03                | 8.3E-02                 |                 |                    | 8.3E-02                   |                 |

Note: see tsd permitted emission units (a)

Magnesium Treatment - F1

| Process:<br>F1   | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|--|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Magnesium Treatment<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-21<br>AP-42 Ch 12.10<br>Fifth edition 1995 | 2.1                    | PM        | 1.80                    | 16.56           | None               |                           | 16.56           |
|  |                        | PM-10     | 1.80                    | 16.56           |                    |                           | 16.56           |
|  |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|  |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|  |                        | VOC       | 0.01                    | 0.05            |                    |                           | 0.05            |
|  |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
|  |                        | Lead      | 0.04                    | 0.39            |                    |                           | 0.39            |

Note: see tsd permitted emission units (a)

Ferrous - F2

| Process:             | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|----------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Ferrous - F2         | 2.1                    |           |                         |                 |                    |                           |                 |
| Melting - Electric   |                        | PM        | 0.90                    | 8.28            | None               |                           | 8.28            |
| Induction Furnace    |                        | PM-10     | 0.86                    | 7.91            |                    |                           | 7.91            |
| Source of Criteria   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| Pollutant Factors:   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| EPA SCC# 3-04-003-03 |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
| FIRE 6.01            |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| AP-42 Ch. 12.10      |                        | chromium  | 2.3E-04                 | 2.1E-03         |                    |                           | 2.1E-03         |
| Fifth edition 1995   |                        | cobalt    | 2.0E-05                 | 1.8E-04         |                    |                           | 1.8E-04         |
|                      |                        | nickel    | 4.0E-04                 | 3.7E-03         |                    |                           | 3.7E-03         |
|                      |                        | arsenic   | 8.0E-05                 | 7.4E-04         |                    |                           | 7.4E-04         |
|                      |                        | cadmium   | 4.0E-05                 | 3.7E-04         |                    |                           | 3.7E-04         |
|                      | FIRE 6.01              | manganese | 2.3E-02                 | 2.1E-01         |                    |                           | 2.1E-01         |
|                      |                        | selenium  | 1.0E-05                 | 9.2E-05         |                    |                           | 9.2E-05         |
|                      | FIRE 6.01              | Lead      | 9.0E-03                 | 8.3E-02         |                    |                           | 8.3E-02         |

Note: see tsd permitted emission units (a)

Magnesium Treatment - F2

| Process:            | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| F2                  | 2.1                    |           |                         |                 |                    |                           |                 |
| Magnesium Treatment |                        | PM        | 1.80                    | 16.56           | None               |                           | 16.56           |
| Source of Criteria  |                        | PM-10     | 1.80                    | 16.56           |                    |                           | 16.56           |
| Pollutant Factors:  |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| FIRE 6.01           |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| SCC# 3-04-003-21    |                        | VOC       | 0.01                    | 0.05            |                    |                           | 0.05            |
| AP-42 Ch 12.10      |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| Fifth edition 1995  |                        | Lead      | 0.04                    | 0.39            |                    |                           | 0.39            |

Note: see tsd permitted emission units (a)

Ferrous - F5

| Process:             | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|----------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Ferrous - F5         | 1.4                    |           |                         |                 |                    |                           |                 |
| Melting - Electric   |                        | PM        | 0.90                    | 5.52            | None               |                           | 5.52            |
| Induction Furnace    |                        | PM-10     | 0.86                    | 5.27            |                    |                           | 5.27            |
| Source of Criteria   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| Pollutant Factors:   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| EPA SCC# 3-04-003-03 |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
| FIRE 6.01            |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| AP-42 Ch. 12.10      |                        | chromium  | 2.3E-04                 | 1.4E-03         |                    |                           | 1.4E-03         |
| Fifth edition 1995   |                        | cobalt    | 2.0E-05                 | 1.2E-04         |                    |                           | 1.2E-04         |
|                      |                        | nickel    | 4.0E-04                 | 2.5E-03         |                    |                           | 2.5E-03         |
|                      |                        | arsenic   | 8.0E-05                 | 4.9E-04         |                    |                           | 4.9E-04         |
|                      |                        | cadmium   | 4.0E-05                 | 2.5E-04         |                    |                           | 2.5E-04         |
|                      | FIRE 6.01              | manganese | 2.3E-02                 | 1.4E-01         |                    |                           | 1.4E-01         |
|                      |                        | selenium  | 1.0E-05                 | 6.1E-05         |                    |                           | 6.1E-05         |
|                      | FIRE 6.01              | Lead      | 9.0E-03                 | 5.5E-02         |                    |                           | 5.5E-02         |

Note: see tsd permitted emission units (b)

Shenango, LLC  
1200 College Ave, Terre Haute, IN 47802

Reviewer:  
Date:

Scott Sines  
6/23/06

## Magnesium Treatment - F5

| Process:<br>F5            | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---------------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Magnesium Treatment       | 1.4                    | PM        | 1.80                    | 11.04           | None               |                           | 11.04           |
| <i>Source of Criteria</i> |                        | PM-10     | 1.80                    | 11.04           |                    |                           | 11.04           |
| <i>Pollutant Factors:</i> |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>FIRE 6.01</i>          |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>SCC# 3-04-003-21</i>   |                        | VOC       | 0.01                    | 0.03            |                    |                           | 0.03            |
| <i>AP-42 Ch 12.10</i>     |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>Fifth edition 1995</i> |                        | Lead      | 0.04                    | 0.26            |                    |                           | 0.26            |

Note: see tsd permitted emission units (b)

## Ferrous - F6

| Process:<br>Ferrous - F6    | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|-----------------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Melting - Electric          | 1.4                    | PM        | 0.90                    | 5.52            | None               |                           | 5.52            |
| Induction Furnace           |                        | PM-10     | 0.86                    | 5.27            |                    |                           | 5.27            |
| <i>Source of Criteria</i>   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>Pollutant Factors:</i>   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>EPA SCC# 3-04-003-03</i> |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>FIRE 6.01</i>            |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>AP-42 Ch. 12.10</i>      |                        | chromium  | 2.3E-04                 | 1.4E-03         |                    |                           | 1.4E-03         |
| <i>Fifth edition 1995</i>   |                        | cobalt    | 2.0E-05                 | 1.2E-04         |                    |                           | 1.2E-04         |
|                             |                        | nickel    | 4.0E-04                 | 2.5E-03         |                    |                           | 2.5E-03         |
|                             |                        | arsenic   | 8.0E-05                 | 4.9E-04         |                    |                           | 4.9E-04         |
|                             |                        | cadmium   | 4.0E-05                 | 2.5E-04         |                    |                           | 2.5E-04         |
|                             | FIRE 6.01              | manganese | 2.3E-02                 | 1.4E-01         |                    |                           | 1.4E-01         |
|                             | FIRE 6.01              | selenium  | 1.0E-05                 | 6.1E-05         |                    |                           | 6.1E-05         |
|                             |                        | Lead      | 9.0E-03                 | 5.5E-02         |                    |                           | 5.5E-02         |

Note: see tsd permitted emission units (b)

## Magnesium Treatment - F6

| Process:<br>F6            | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---------------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Magnesium Treatment       | 1.4                    | PM        | 1.80                    | 11.04           | None               |                           | 11.04           |
| <i>Source of Criteria</i> |                        | PM-10     | 1.80                    | 11.04           |                    |                           | 11.04           |
| <i>Pollutant Factors:</i> |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>FIRE 6.01</i>          |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>SCC# 3-04-003-21</i>   |                        | VOC       | 0.01                    | 0.03            |                    |                           | 0.03            |
| <i>AP-42 Ch 12.10</i>     |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| <i>Fifth edition 1995</i> |                        | Lead      | 0.04                    | 0.26            |                    |                           | 0.26            |

Note: see tsd permitted emission units (b)

Shenango, LLC  
1200 College Ave, Terre Haute, IN 47802

Reviewer:  
Date:

Scott Sines  
6/23/06

## Ferrous - F7

| Process:<br>Ferrous - F7  | Rate<br>(tons iron/hr)     | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|----------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Melting - Electric<br>Induction Furnace<br><i>Source of Criteria</i><br><i>Pollutant Factors:</i><br><br>EPA SCC# 3-04-003-03<br>FIRE 6.01<br>AP-42 Ch. 12.10<br>Fifth edition 1995 | 1.4                        | PM        | 0.90                    | 5.52            | None               |                           | 5.52            |
|   | FIRE 6.01<br><br>FIRE 6.01 | PM-10     | 0.86                    | 5.27            |                    |                           | 5.27            |
|   |                            | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | chromium  | 2.3E-04                 | 1.4E-03         |                    |                           | 1.4E-03         |
|   |                            | cobalt    | 2.0E-05                 | 1.2E-04         |                    |                           | 1.2E-04         |
|   |                            | nickel    | 4.0E-04                 | 2.5E-03         |                    |                           | 2.5E-03         |
|   |                            | arsenic   | 8.0E-05                 | 4.9E-04         |                    |                           | 4.9E-04         |
|   |                            | cadmium   | 4.0E-05                 | 2.5E-04         |                    |                           | 2.5E-04         |
|   |                            | manganese | 2.3E-02                 | 1.4E-01         |                    |                           | 1.4E-01         |
|   |                            | selenium  | 1.0E-05                 | 6.1E-05         |                    |                           | 6.1E-05         |
|   |                            | Lead      | 9.0E-03                 | 5.5E-02         |                    |                           | 5.5E-02         |

Note: see tsd permitted emission units (b)

## Magnesium Treatment - F7

| Process:<br>F7   | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|--|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Magnesium Treatment<br><i>Source of Criteria</i><br><i>Pollutant Factors:</i><br>FIRE 6.01<br>SCC# 3-04-003-21<br>AP-42 Ch 12.10<br>Fifth edition 1995 | 1.4                    | PM        | 1.80                    | 11.04           | None               |                           | 11.04           |
|  | FIRE 6.01              | PM-10     | 1.80                    | 11.04           |                    |                           | 11.04           |
|  |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|  |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|  |                        | VOC       | 0.01                    | 0.03            |                    |                           | 0.03            |
|  |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
|  |                        | Lead      | 0.04                    | 0.26            |                    |                           | 0.26            |

Note: see tsd permitted emission units (b)

## Ferrous - F12

| Process:<br>Ferrous - F12   | Rate<br>(tons iron/hr)     | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|----------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Melting - Electric<br>Induction Furnace<br><i>Source of Criteria</i><br><i>Pollutant Factors:</i><br><br>EPA SCC# 3-04-003-03<br>FIRE 6.01<br>AP-42 Ch. 12.10<br>Fifth edition 1995 | 0.735                      | PM        | 0.90                    | 2.90            | None               |                           | 2.90            |
|   | FIRE 6.01<br><br>FIRE 6.01 | PM-10     | 0.86                    | 2.77            |                    |                           | 2.77            |
|   |                            | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                            | chromium  | 2.3E-04                 | 7.4E-04         |                    |                           | 7.4E-04         |
|   |                            | cobalt    | 2.0E-05                 | 6.4E-05         |                    |                           | 6.4E-05         |
|   |                            | nickel    | 4.0E-04                 | 1.3E-03         |                    |                           | 1.3E-03         |
|   |                            | arsenic   | 8.0E-05                 | 2.6E-04         |                    |                           | 2.6E-04         |
|   |                            | cadmium   | 4.0E-05                 | 1.3E-04         |                    |                           | 1.3E-04         |
|   |                            | manganese | 2.3E-02                 | 7.2E-02         |                    |                           | 7.2E-02         |
|   |                            | selenium  | 1.0E-05                 | 3.2E-05         |                    |                           | 3.2E-05         |
|   |                            | Lead      | 9.0E-03                 | 2.9E-02         |                    |                           | 2.9E-02         |

Note: see tsd permitted emission units (b)

Shenango, LLC  
 1200 College Ave, Terre Haute, IN 47802

Reviewer:  
 Date:

Scott Sines  
 6/23/06

Magnesium Treatment - F12

| Process:<br>F12     | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Magnesium Treatment | 0.735                  | PM        | 1.80                    | 5.79            | None               |                           | 5.79            |
| Source of Criteria  |                        | PM-10     | 1.80                    | 5.79            |                    |                           | 5.79            |
| Pollutant Factors:  |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| FIRE 6.01           |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| SCC# 3-04-003-21    |                        | VOC       | 0.01                    | 0.02            |                    |                           | 0.02            |
| AP-42 Ch 12.10      |                        | CO        | 0.00                    | 0.00            |                    |                           | 0.00            |
| Fifth edition 1995  |                        | Lead      | 0.04                    | 0.14            |                    |                           | 0.14            |

Note: see tsd permitted emission units (b)

Methodology:

Ef = Emission factor

Ebc = Potential Emissions before controls = Rate (units/hr) x Ef(lbs/unit) x 8760 hrs/yr / 2000 lbs/hr

Eac = Potential Emissions after controls = (1-efficiency/100) x Ebc

1ton = 2000 lbs

ironcalc.xls  
 created 11/98

SUMMARY OF PTE - MELTING (WORST CASE BEING MAGNESIUM TREATMENT)

|  | Pollutant |       |      |
|--|-----------|-------|------|
|  | PM        | PM-10 | Pb   |
| Emissions Factor Ferrous Metal (lbs/ton melted) (SCC 30400303)       | 0.9       | 0.9   | 0.1  |
| Emissions Factor Magnesium Treatment (lbs/ton melted) (SCC 30400321) | 1.8       | 1.8   | 0.0  |
| Worst Case Potential emissions (tons/yr)                             | 44.43     | 44.43 | 1.05 |

Totals of furnaces F1 or F2 plus F12, in combination with (2 of 3 furnaces) F5, F6, or F7

Shenango, LLC  
1200 College Ave, Terre Haute, IN 47802

Reviewer:  
Date:

Scott Sines  
6/23/06

## Pouring/Casting -S1

| Process:<br>S1            | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---------------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting           | 1.6                    | PM        | 4.20                    | 29.43           | None               |                           | 29.43           |
| <i>Source of Criteria</i> |                        | PM-10     | 2.06                    | 14.44           |                    |                           | 14.44           |
| <i>Pollutant Factors:</i> | FIRE 5.0               | SO2       | 0.02                    | 0.14            |                    |                           | 0.14            |
| <i>FIRE 6.01</i>          | FIRE 5.0               | NOx       | 0.01                    | 0.07            |                    |                           | 0.07            |
| <i>SCC# 3-04-003-18</i>   | FIRE 5.0               | VOC       | 0.14                    | 0.98            |                    |                           | 0.98            |
| <i>(except as noted)</i>  |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|                           |                        | chromium  | 1.6E-03                 | 1.1E-02         |                    |                           | 1.1E-02         |
|                           |                        | cobalt    | 1.3E-04                 | 9.1E-04         |                    |                           | 9.1E-04         |
|                           |                        | nickel    | 2.8E-03                 | 2.0E-02         |                    |                           | 2.0E-02         |
|                           |                        | arsenic   | 5.5E-04                 | 3.9E-03         |                    |                           | 3.9E-03         |
|                           |                        | cadmium   | 2.5E-04                 | 1.8E-03         |                    |                           | 1.8E-03         |
|                           |                        | selenium  | 4.0E-05                 | 2.8E-04         |                    |                           | 2.8E-04         |
|                           |                        | Lead      | 1.6E-02                 | 1.1E-01         |                    |                           | 1.1E-01         |

## Pouring/Casting -S2

| Process:<br>S2            | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---------------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting           | 1.3                    | PM        | 4.20                    | 24.52           | None               |                           | 24.52           |
| <i>Source of Criteria</i> |                        | PM-10     | 2.06                    | 12.03           |                    |                           | 12.03           |
| <i>Pollutant Factors:</i> | FIRE 5.0               | SO2       | 0.02                    | 0.12            |                    |                           | 0.12            |
| <i>FIRE 6.01</i>          | FIRE 5.0               | NOx       | 0.01                    | 0.06            |                    |                           | 0.06            |
| <i>SCC# 3-04-003-18</i>   | FIRE 5.0               | VOC       | 0.14                    | 0.82            |                    |                           | 0.82            |
| <i>(except as noted)</i>  |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|                           |                        | chromium  | 1.6E-03                 | 9.3E-03         |                    |                           | 9.3E-03         |
|                           |                        | cobalt    | 1.3E-04                 | 7.6E-04         |                    |                           | 7.6E-04         |
|                           |                        | nickel    | 2.8E-03                 | 1.6E-02         |                    |                           | 1.6E-02         |
|                           |                        | arsenic   | 5.5E-04                 | 3.2E-03         |                    |                           | 3.2E-03         |
|                           |                        | cadmium   | 2.5E-04                 | 1.5E-03         |                    |                           | 1.5E-03         |
|                           |                        | selenium  | 4.0E-05                 | 2.3E-04         |                    |                           | 2.3E-04         |
|                           |                        | Lead      | 1.6E-02                 | 9.4E-02         |                    |                           | 9.4E-02         |

Shenango, LLC  
1200 College Ave, Terre Haute, IN 47802

Reviewer:  
Date:

Scott Sines  
6/23/06

## Pouring/Casting -S3

| Process:<br>S3  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-18<br>(except as noted) | 1.0                    | PM        | 4.20                    | 18.08           | None               |                           | 18.08           |
|   |                        | PM-10     | 2.06                    | 8.87            |                    |                           | 8.87            |
|   | FIRE 5.0               | SO2       | 0.02                    | 0.09            |                    |                           | 0.09            |
|   | FIRE 5.0               | NOx       | 0.01                    | 0.04            |                    |                           | 0.04            |
|   | FIRE 5.0               | VOC       | 0.14                    | 0.60            |                    |                           | 0.60            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | chromium  | 1.6E-03                 | 6.9E-03         |                    |                           | 6.9E-03         |
|   |                        | cobalt    | 1.3E-04                 | 5.6E-04         |                    |                           | 5.6E-04         |
|   |                        | nickel    | 2.8E-03                 | 1.2E-02         |                    |                           | 1.2E-02         |
|   |                        | arsenic   | 5.5E-04                 | 2.4E-03         |                    |                           | 2.4E-03         |
|   |                        | cadmium   | 2.5E-04                 | 1.1E-03         |                    |                           | 1.1E-03         |
|   |                        | selenium  | 4.0E-05                 | 1.7E-04         |                    |                           | 1.7E-04         |
|   |                        | Lead      | 1.6E-02                 | 7.0E-02         |                    |                           | 7.0E-02         |

## Pouring/Casting -S4

| Process:<br>S4  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-18<br>(except as noted) | 2.7                    | PM        | 4.20                    | 50.19           | None               |                           | 50.19           |
|   |                        | PM-10     | 2.06                    | 24.62           |                    |                           | 24.62           |
|   | FIRE 5.0               | SO2       | 0.02                    | 0.24            |                    |                           | 0.24            |
|   | FIRE 5.0               | NOx       | 0.01                    | 0.12            |                    |                           | 0.12            |
|   | FIRE 5.0               | VOC       | 0.14                    | 1.67            |                    |                           | 1.67            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | chromium  | 1.6E-03                 | 1.9E-02         |                    |                           | 1.9E-02         |
|   |                        | cobalt    | 1.3E-04                 | 1.6E-03         |                    |                           | 1.6E-03         |
|   |                        | nickel    | 2.8E-03                 | 3.4E-02         |                    |                           | 3.4E-02         |
|   |                        | arsenic   | 5.5E-04                 | 6.6E-03         |                    |                           | 6.6E-03         |
|   |                        | cadmium   | 2.5E-04                 | 3.0E-03         |                    |                           | 3.0E-03         |
|   |                        | selenium  | 4.0E-05                 | 4.8E-04         |                    |                           | 4.8E-04         |
|   |                        | Lead      | 1.6E-02                 | 1.9E-01         |                    |                           | 1.9E-01         |

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1200 College Ave, Terre Haute, IN 47802

Reviewer:  
Date:

Scott Sines  
6/23/06

## Pouring/Casting -S5

| Process:<br>S5     | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|--------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting    | 1.5                    | PM        | 4.20                    | 27.25           | None               |                           | 27.25           |
| Source of Criteria |                        | PM-10     | 2.06                    | 13.37           |                    |                           | 13.37           |
| Pollutant Factors: | FIRE 5.0               | SO2       | 0.02                    | 0.13            |                    |                           | 0.13            |
| FIRE 6.01          | FIRE 5.0               | NOx       | 0.01                    | 0.06            |                    |                           | 0.06            |
| SCC# 3-04-003-18   | FIRE 5.0               | VOC       | 0.14                    | 0.91            |                    |                           | 0.91            |
| (except as noted)  |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|                    |                        | chromium  | 1.6E-03                 | 1.0E-02         |                    |                           | 1.0E-02         |
|                    |                        | cobalt    | 1.3E-04                 | 8.4E-04         |                    |                           | 8.4E-04         |
|                    |                        | nickel    | 2.8E-03                 | 1.8E-02         |                    |                           | 1.8E-02         |
|                    |                        | arsenic   | 5.5E-04                 | 3.6E-03         |                    |                           | 3.6E-03         |
|                    |                        | cadmium   | 2.5E-04                 | 1.6E-03         |                    |                           | 1.6E-03         |
|                    |                        | selenium  | 4.0E-05                 | 2.6E-04         |                    |                           | 2.6E-04         |
|                    |                        | Lead      | 1.6E-02                 | 1.0E-01         |                    |                           | 1.0E-01         |

## Pouring/Casting -S6

| Process:<br>S6     | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|--------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting    | 0.6                    | PM        | 4.20                    | 11.56           | None               |                           | 11.56           |
| Source of Criteria |                        | PM-10     | 2.06                    | 5.67            |                    |                           | 5.67            |
| Pollutant Factors: | FIRE 5.0               | SO2       | 0.02                    | 0.06            |                    |                           | 0.06            |
| FIRE 6.01          | FIRE 5.0               | NOx       | 0.01                    | 0.03            |                    |                           | 0.03            |
| SCC# 3-04-003-18   | FIRE 5.0               | VOC       | 0.14                    | 0.39            |                    |                           | 0.39            |
| (except as noted)  |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|                    |                        | chromium  | 1.6E-03                 | 4.4E-03         |                    |                           | 4.4E-03         |
|                    |                        | cobalt    | 1.3E-04                 | 3.6E-04         |                    |                           | 3.6E-04         |
|                    |                        | nickel    | 2.8E-03                 | 7.7E-03         |                    |                           | 7.7E-03         |
|                    |                        | arsenic   | 5.5E-04                 | 1.5E-03         |                    |                           | 1.5E-03         |
|                    |                        | cadmium   | 2.5E-04                 | 6.9E-04         |                    |                           | 6.9E-04         |
|                    |                        | selenium  | 4.0E-05                 | 1.1E-04         |                    |                           | 1.1E-04         |
|                    |                        | Lead      | 1.6E-02                 | 4.5E-02         |                    |                           | 4.5E-02         |

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Pouring/Casting -S7

| Process:<br>S7  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-18<br>(except as noted) | 0.6                    | PM        | 4.20                    | 11.56           | None               |                           | 11.56           |
|   |                        | PM-10     | 2.06                    | 5.67            |                    |                           | 5.67            |
|   | FIRE 5.0               | SO2       | 0.02                    | 0.06            |                    |                           | 0.06            |
|   |                        | NOx       | 0.01                    | 0.03            |                    |                           | 0.03            |
|   |                        | VOC       | 0.14                    | 0.39            |                    |                           | 0.39            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | chromium  | 1.6E-03                 | 4.4E-03         |                    |                           | 4.4E-03         |
|   |                        | cobalt    | 1.3E-04                 | 3.6E-04         |                    |                           | 3.6E-04         |
|   |                        | nickel    | 2.8E-03                 | 7.7E-03         |                    |                           | 7.7E-03         |
|   |                        | arsenic   | 5.5E-04                 | 1.5E-03         |                    |                           | 1.5E-03         |
|   |                        | cadmium   | 2.5E-04                 | 6.9E-04         |                    |                           | 6.9E-04         |
|   |                        | selenium  | 4.0E-05                 | 1.1E-04         |                    |                           | 1.1E-04         |
|   |                        | Lead      | 1.6E-02                 | 4.5E-02         |                    |                           | 4.5E-02         |

Pouring/Casting -S8

| Process:<br>S8  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Pouring/Casting<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-18<br>(except as noted) | 0.1                    | PM        | 4.20                    | 2.41            | None               |                           | 2.41            |
|   |                        | PM-10     | 2.06                    | 1.18            |                    |                           | 1.18            |
|   | FIRE 5.0               | SO2       | 0.02                    | 0.01            |                    |                           | 0.01            |
|   |                        | NOx       | 0.01                    | 0.01            |                    |                           | 0.01            |
|   |                        | VOC       | 0.14                    | 0.08            |                    |                           | 0.08            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | chromium  | 1.6E-03                 | 9.2E-04         |                    |                           | 9.2E-04         |
|   |                        | cobalt    | 1.3E-04                 | 7.5E-05         |                    |                           | 7.5E-05         |
|   |                        | nickel    | 2.8E-03                 | 1.6E-03         |                    |                           | 1.6E-03         |
|   |                        | arsenic   | 5.5E-04                 | 3.2E-04         |                    |                           | 3.2E-04         |
|   |                        | cadmium   | 2.5E-04                 | 1.4E-04         |                    |                           | 1.4E-04         |
|   |                        | selenium  | 4.0E-05                 | 2.3E-05         |                    |                           | 2.3E-05         |
|   |                        | Lead      | 1.6E-02                 | 9.3E-03         |                    |                           | 9.3E-03         |

SUMMARY OF PTE - SPIN CASTING

|  | Pollutant |       |                 |                 |      |          |
|--|-----------|-------|-----------------|-----------------|------|----------|
|  | PM        | PM-10 | SO <sub>2</sub> | NO <sub>x</sub> | VOC  | Pb       |
| Emissions Factor Pouring/Casting (lbs/ton melted) (SCC 30400320) | 4.2       | 2.06  | 0.02            | 0.0             | 0.14 | 1.60E-02 |
| Potential Emissions (tons/yr)                                    | 175.02    | 85.84 | 0.83            | 0.4             | 5.83 | 6.7E-01  |

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## Castings Cooling - S1

| Process:<br>S1  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-25 | 1.7                    | PM        | 1.40                    | 10.56           | None               |                           | 10.56           |
|   |                        | PM-10     | 1.40                    | 10.56           |                    |                           | 10.56           |
|   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

## Castings Cooling - S2

| Process:<br>S2  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-25 | 1.3                    | PM        | 1.40                    | 8.17            | None               |                           | 8.17            |
|   |                        | PM-10     | 1.40                    | 8.17            |                    |                           | 8.17            |
|   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

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## Castings Cooling - S3

| Process:<br>S3     | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|--------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling   | 1.0                    | PM        | 1.40                    | 6.03            | None               |                           | 6.03            |
| Source of Criteria |                        | PM-10     | 1.40                    | 6.03            |                    |                           | 6.03            |
| Pollutant Factors: |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| FIRE 6.01          |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| SCC# 3-04-003-25   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|                    |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|                    |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

## Castings Cooling - S4

| Process:<br>S4     | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|--------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling   | 2.7                    | PM        | 1.40                    | 16.73           | None               |                           | 16.73           |
| Source of Criteria |                        | PM-10     | 1.40                    | 16.73           |                    |                           | 16.73           |
| Pollutant Factors: |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
| FIRE 6.01          |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
| SCC# 3-04-003-25   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|                    |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|                    |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

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1200 College Ave, Terre Haute, IN 47802

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## Castings Cooling - S5

| Process:<br>S5  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-25 | 1.5                    | PM        | 1.40                    | 9.08            | None               |                           | 9.08            |
|   |                        | PM-10     | 1.40                    | 9.08            |                    |                           | 9.08            |
|   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

## Castings Cooling - S6

| Process:<br>S6  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-25 | 0.6                    | PM        | 1.40                    | 3.85            | None               |                           | 3.85            |
|   |                        | PM-10     | 1.40                    | 3.85            |                    |                           | 3.85            |
|   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

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Reviewer:  
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Castings Cooling - S7

| Process:<br>S7  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-25 | 0.6                    | PM        | 1.40                    | 3.85            | None               |                           | 3.85            |
|   |                        | PM-10     | 1.40                    | 3.85            |                    |                           | 3.85            |
|   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

Castings Cooling - S8

| Process:<br>S8  | Rate<br>(tons iron/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|---|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Castings Cooling<br>Source of Criteria<br>Pollutant Factors:<br>FIRE 6.01<br>SCC# 3-04-003-25 | 0.1                    | PM        | 1.40                    | 0.80            | None               |                           | 0.80            |
|   |                        | PM-10     | 1.40                    | 0.80            |                    |                           | 0.80            |
|   |                        | SO2       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | NOx       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | VOC       | 0.00                    | 0.00            |                    |                           | 0.00            |
|   |                        | CO        | ---                     | 0.00            |                    |                           | 0.00            |
|   |                        | Lead      | ---                     | 0.00            |                    |                           | 0.00            |

SUMMARY OF PTE - COOLING

|  | Pollutant |       |                 |                 |     |
|--|-----------|-------|-----------------|-----------------|-----|
|  | PM        | PM-10 | SO <sub>2</sub> | NO <sub>x</sub> | VOC |
| Emissions Factor (lbs/ton produced) (SCC 30400325) | 0.8       | 0.8   | 0.0             | 0.0             | 0.0 |
| Potential Emissions (tons/year)                    | 59.1      | 59.1  | 0.0             | 0.0             | 0.0 |

Shenango, LLC  
 1200 College Ave, Terre Haute, IN 47802

Reviewer:  
 Date:

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 6/23/06

Sand Handling

| Process:             | Rate<br>(tons sand/hr) | Pollutant | Ef<br>(lb/ton produced) | Ebc<br>(ton/yr) | Type of<br>control | Control Efficiency<br>(%) | Eac<br>(ton/yr) |
|----------------------|------------------------|-----------|-------------------------|-----------------|--------------------|---------------------------|-----------------|
| Sand Handling        | 1.25                   | PM        | 3.6                     | 19.7            | None               |                           | 19.7            |
| Source of Criteria   |                        | PM-10     | 0.54                    | 3.0             |                    |                           | 3.0             |
| Pollutant Factors:   |                        |           |                         |                 |                    |                           |                 |
| FIRE 6.01            |                        |           |                         |                 |                    |                           |                 |
| EPA SCC# 3-04-003-50 |                        |           |                         |                 |                    |                           |                 |

Methodology:

Ef = Emission factor

Ebc = Potential Emissions before controls = Rate (units/hr) x Ef(lbs/unit) x 8760 hrs/yr / 2000 lbs/hr

Eac = Potential Emissions after controls = (1-efficiency/100) x Ebc

1ton = 2000 lbs

ironcalc.xls  
 created 11/98

SUMMARY OF POTENTIAL TO EMIT - POURING, CASTING, COOLING, SAND HANDLING

|                               | Pollutant |        |                 |                 |      |         |
|-------------------------------|-----------|--------|-----------------|-----------------|------|---------|
|                               | PM        | PM-10  | SO <sub>2</sub> | NO <sub>x</sub> | VOC  | Pb      |
| Potential Emissions (tons/yr) | 298.25    | 192.32 | 0.83            | 0.4             | 5.83 | 1.7E+00 |

Scrap Cutter (finish saw)

Material removed from cropping castings = 600 cubic inches/week

Metal density = 0.2833 lbs/cubic inch

Weight removed from cropping castings/week = 170 lbs/week or 4.42 tons/year

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
Small Industrial Boiler**

**Company Name:** Shenango, LLC  
**Address City IN Zip:** 1200 College Ave., Terre Haute, IN 47802  
**Permit Number:** 167-23088-00068  
**Pit ID:** 167-00068  
**Reviewer:** Scott Sines  
**Date:** 6/23/2006

|   |                                 |
|---|---------------------------------|
| Heat Input Capacity<br>MMBtu/hr                                 | Potential Throughput<br>MMCF/yr |
| Combined input of M2, M3, L1 - L6, and Miscellaneous Activities |                                 |
| 6.3   | 54.9                            |

|                               | Pollutant |       |     |       |     |      |
|-------------------------------|-----------|-------|-----|-------|-----|------|
|                               | PM*       | PM10* | SO2 | NOx   | VOC | CO   |
| Emission Factor in lb/MMCF    | 1.9       | 7.6   | 0.6 | 100.0 | 5.5 | 84.0 |
| Potential Emission in tons/yr | 0.1       | 0.2   | 0.0 | 2.7   | 0.2 | 2.3  |

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations  
 Natural Gas Combustion Only  
 MM BTU/HR <100  
 Small Industrial Boiler  
 HAPs Emissions**

**Company Name:** Shenango, LLC  
**Address City IN Zip:** 1200 College Ave., Terre Haute, IN 47802  
**Permit Number:** 14053-00068  
**Pit ID:** 167-00068  
**Reviewer:** Scott Sines  
**Date:** 8/17/2005

| HAPs - Organics               |                    |                            |                         |                   |                    |
|-------------------------------|--------------------|----------------------------|-------------------------|-------------------|--------------------|
| Emission Factor in lb/MMcf    | Benzene<br>2.1E-03 | Dichlorobenzene<br>1.2E-03 | Formaldehyde<br>7.5E-02 | Hexane<br>1.8E+00 | Toluene<br>3.4E-03 |
| Potential Emission in tons/yr | 5.761E-05          | 3.292E-05                  | 2.057E-03               | 4.938E-02         | 9.327E-05          |

| HAPs - Metals                 |                 |                    |                     |                      |                   |
|-------------------------------|-----------------|--------------------|---------------------|----------------------|-------------------|
| Emission Factor in lb/MMcf    | Lead<br>5.0E-04 | Cadmium<br>1.1E-03 | Chromium<br>1.4E-03 | Manganese<br>3.8E-04 | Nickel<br>2.1E-03 |
| Potential Emission in tons/yr | 1.372E-05       | 3.018E-05          | 3.840E-05           | 1.042E-05            | 5.761E-05         |

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emission Calculations**

**Abrasive Blasting - Confined**

**Company Name:** Shenango, LLC  
**Address City IN Zip:** 1200 College Ave, Terre Haute, IN 47802  
**Permit Number:** 167-23088-00068  
**Plt ID:** 167-00068  
**Reviewer:** Scott Sines  
**Date:** 8/17/2005

**Table 1 - Emission Factors for Abrasives**

| Abrasive   | Emission Factor     |                 |
|------------|---------------------|-----------------|
|            | lb PM / lb abrasive | lb PM10 / lb PM |
| Sand       | 0.041               | 0.70            |
| Grit       | 0.010               | 0.70            |
| Steel Shot | 0.004               | 0.86            |
| Other      | 0.010               |                 |

**Table 2 - Density of Abrasives (lb/ft3)**

| Abrasive  | Density (lb/ft3) |
|-----------|------------------|
| Al oxides | 160              |
| Sand      | 99               |
| Steel     | 487              |

**Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)**

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

| Internal diameter, in | Nozzle Pressure (psig) |      |      |      |      |      |      |      |
|-----------------------|------------------------|------|------|------|------|------|------|------|
|                       | 30                     | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
| 1/8                   | 28                     | 35   | 42   | 49   | 55   | 63   | 70   | 77   |
| 3/16                  | 65                     | 80   | 94   | 107  | 122  | 135  | 149  | 165  |
| 1/4                   | 109                    | 138  | 168  | 195  | 221  | 255  | 280  | 309  |
| 5/16                  | 205                    | 247  | 292  | 354  | 377  | 420  | 462  | 507  |
| 3/8                   | 285                    | 355  | 417  | 477  | 540  | 600  | 657  | 720  |
| 7/16                  | 385                    | 472  | 560  | 645  | 755  | 820  | 905  | 940  |
| 1/2                   | 503                    | 615  | 725  | 835  | 945  | 1050 | 1160 | 1265 |
| 5/8                   | 820                    | 990  | 1170 | 1336 | 1510 | 1680 | 1850 | 2030 |
| 3/4                   | 1140                   | 1420 | 1670 | 1915 | 2160 | 2400 | 2630 | 2880 |
| 1                     | 2030                   | 2460 | 2900 | 3340 | 3780 | 4200 | 4640 | 5060 |

**Calculations**

*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

|        |
|--------|
| 462    |
| 99     |
| 99     |
| 0.3125 |
| 0.313  |

**Flow Rate (FR) (lb/hr) = 462.000 per nozzle**

**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

|         |
|---------|
| 0.041   |
| 462.000 |
| 0 %     |
| 1       |

|                                 |                        |                           |
|---------------------------------|------------------------|---------------------------|
| <b>Uncontrolled Emissions =</b> | <b>18.94 lb/hr PM</b>  | <b>13.26 lb/hr PM-10</b>  |
|                                 | <b>82.97 ton/yr PM</b> | <b>58.08 ton/yr PM-10</b> |

|                                  |                          |
|----------------------------------|--------------------------|
| <b>12 hrs/week limit =</b>       | <b>5.92 ton/yr PM</b>    |
| <b>(requested by the source)</b> | <b>4.14 ton/yr PM-10</b> |

**METHODOLOGY**

Emission Factors from STAPPA/ALAPCO "Air Quality Permits", Vol. I, Section 3 "Abrasive Blasting" (1991 edition)

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lb

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

**Appendix A: Emission Calculations**  
**Ferrous and Nonferrous Iron Foundry Emissions**

**Company Name:** Shenango, LLC  
**Address City IN Zip:** 1200 College Ave, Terre Haute, IN 47802  
**Permit Number:** 167-23088-00068  
**Plt ID:** 167-00068  
**Reviewer:** Scott Sines  
**Date:** 6/23/2006

**HAP Emissions From Furnaces**

| HAP       | Maximum Rate (tons/hr) | Emissions Factor (lb/ton) | Potential Emissions (tons/yr) |
|-----------|------------------------|---------------------------|-------------------------------|
| Chromium  | 5.635                  | 2.30E-04                  | 0.01                          |
| Manganese | 5.635                  | 2.30E-02                  | 0.57                          |
| Lead      | 5.635                  | 4.20E-02                  | 1.04                          |
| Nickel    | 5.635                  | 4.00E-04                  | 0.01                          |
| Total     |                        |                           | 1.62                          |

Totals of furnaces F1 or F2 plus F12, in combination with (2 of 3 furnaces) F5, F6, or F7

**Summary of Emissions**

**Potential to emit based on a total of 43,568 tpy metal melted and processed:**

| Unit          | PM     | PM-10  | SO <sub>2</sub> | NO <sub>x</sub> | VOC  | CO   | Pb   |
|---------------|--------|--------|-----------------|-----------------|------|------|------|
| Furnaces      | 44.43  | 44.43  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Spin Casting  | 177.26 | 86.94  | 0.84            | 0.40            | 5.91 | 0.00 | 0.68 |
| Cooling       | 59.10  | 59.10  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Sand Handling | 19.70  | 3.00   | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Sand Blasting | 82.97  | 58.08  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Scrap Cutter  | 4.42   | 0.00   | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Natural Gas   | 0.10   | 0.20   | 0.00            | 2.70            | 0.20 | 2.30 | 0.00 |
| Misc.         | 3.00   | 3.00   | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Total         | 390.98 | 254.75 | 0.84            | 3.10            | 6.11 | 2.30 | 0.68 |

Totals of furnaces F1 or F2 plus F12, in combination with (2 of 3 furnaces) F5, F6, or F7

**Limited PTE based on source-requested limits of: 12,000 tpy ferrous and 3,000 tpy ductile iron.**

| Unit          | PM    | PM-10 | SO <sub>2</sub> | NO <sub>x</sub> | VOC  | CO   | Pb   |
|---------------|-------|-------|-----------------|-----------------|------|------|------|
| Furnaces      | 8.10  | 7.86  | 0.00            | 0.00            | 0.01 | 0.00 | 0.11 |
| Spin Casting  | 31.50 | 15.45 | 0.15            | 0.08            | 1.05 | 0.00 | 0.12 |
| Cooling       | 10.50 | 10.50 | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Sand Handling | 4.40  | 0.70  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Sand Blasting | 5.92  | 4.14  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Scrap Cutter  | 4.42  | 0.00  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Natural Gas   | 0.10  | 0.20  | 0.00            | 2.70            | 0.20 | 2.30 | 0.00 |
| Misc.         | 3.00  | 3.00  | 0.00            | 0.00            | 0.00 | 0.00 | 0.00 |
| Total         | 67.94 | 41.85 | 0.15            | 2.78            | 1.26 | 2.30 | 0.23 |

Totals of furnaces F1 or F2 plus F12, in combination with (2 of 3 furnaces) F5, F6, or F7

**Mold Spray**

Mold spray operations uses an aqueous inorganic mixture of quartz, diatomaceous earth, and water resulting in no VOCs, PM, PM-10, or HAPs being emitted.